consisting of DNA molecules, DNA fragments, synthesized oligonucleotides, synthesized polynucleotides, and PNA are fixed under such condition that a group of the probe compounds fixed in one area differs from a group of the probe compounds fixed in another area, so that DNA fragments complementary to a group of the probe compounds are fixed by hybridization to the area in which the last-mentioned group is fixed;

removing unfixed sample DNA fragments from the DNA micro-array;

keeping the DNA micro-array in contact with a radiation image storage panel which has divided stimulable phosphor layers containing a stimulable phosphor in areas corresponding to the areas on which groups of the probe compounds are fixed, so that the corresponding areas of the stimulable phosphor sheet can absorb and store radiation energy of the radioactive label coming from the DNA fragments fixed to the DNA micro-array;

irradiating the radiation image storage panel with a stimulating light, so that the image storage panel releases a stimulated emission from the area in which the radiation energy is stored;

detecting the stimulated emission photoelectrically to obtain a series of electric signals; and

processing the electric signals to locate the area in which the complementary DNA fragments are fixed.

Claim 2 (Twice Amended) The process of claim 1, in which area on the radiation image storage panel other than the areas of stimulable phosphor layers is covered by a physical barrier member made of non-radiation transmitting material selected from the group consisting of metal, ceramic material, and polymer material.

Claim 6 (Amended) A process for detecting a complementary DNA fragment which comprises the steps of:

bringing single-stranded sample DNA fragments having a radioactive label in a liquid phase into contact with a gridded DNA micro-array on a solid support having at least two defined areas in each of which a group of probe compounds selected from the group consisting of DNA molecules, DNA fragments, synthesized oligonucleotides, synthesized polynucleotides, and PNA are fixed under such condition that a group of the probe compounds fixed in one area differs from a group of the probe compounds fixed in another area, so that DNA fragments complementary to a group of the probe compounds are fixed by hybridization to the area in which the probe compounds are fixed;

removing unfixed sample DNA fragments from the DNA micro-array;

keeping the DNA micro-array in contact with a radiation image storage panel which has divided stimulable phosphor layers containing a stimulable phosphor in areas corresponding to the areas on which groups of the probe compounds are fixed, so that

the corresponding areas of the stimulable phosphor sheet can absorb and store radiation energy of the radioactive label coming from the DNA fragments fixed to the DNA micro-array;

irradiating the radiation image storage panel with a stimulating light, so that the image storage panel releases a stimulated emission from the area in which the radiation energy is stored;

detecting the stimulated emission photoelectrically to obtain a series of electric signals; and

processing the electric signals to locate the area in which the complementary DNA fragments are fixed.

REMARKS

STATUS OF THE CLAIMS

Claims 1-3, 6 and 7 are pending in the present application.

REJECTION OF CLAIMS 1-3 UNDER 35 U.S.C. 112; REJECTION OF CLAIMS 1-3 UNDER 35 U.S.C. 102(e)

Applicants gratefully acknowledge that the rejections of the claims under 35 U.S.C. 112, second paragraph, and under 35 U.S.C. 102(e) over U.S. Patent 6,256,405 to Some et al. have been withdrawn by the Examiner.